



SV-020P2

3-phase or single-phase 200 to 230 VAC (for 200 W)



SPECIFICATIONS

Model		SV-020P2		
Power supply/current capacity and power loss	Maximum applicable motor capacity Three-phase 200 VAC		200 W	
	Maximum applicable motor capacity Single-phase 200 VAC			
	Power capacity (VA) per amplifier Three-phase 200 VAC		600 VA	
	Power capacity (VA) per amplifier Single-phase 200 VAC		700 VA	
	Output current Continuous	Three-phase 200 VAC	1.6 Arms	
		Single-phase 200 VAC		
	Output current Maximum	Three-phase 200 VAC	5.8 Arms	
		Single-phase 200 VAC		
	Main circuit power loss Three-phase 200 VAC		13.5 W	
	Main circuit power loss Single-phase 200 VAC		13.7 W	
	Built-in regenerative resistor power loss Single-phase 100 VAC		—	
	Built-in regenerative resistor power loss Three-phase 200 VAC			
	Built-in regenerative resistor power loss Single-phase 200 VAC			
	Control circuit power loss Single-phase 100 VAC		17 W	
	Control circuit power loss Three-phase 200 VAC			
	Control circuit power loss Single-phase 200 VAC			
	Total power loss Three-phase 200 VAC		30.5 W	
Total power loss Single-phase 200 VAC		30.7 W		
Input rated current	Main circuit Three-phase 200 VAC	2 Arms		
	Main circuit Single-phase 200 VAC	3 Arms		
	Control circuit Three-phase 200 VAC	0.2 Arms		
	Control circuit Single-phase 200 VAC			
Rush current	Main circuit Single-phase 100 VAC	— ¹⁾		
	Main circuit Three-phase 200 VAC	33 A ¹⁾		
	Main circuit Single-phase 200 VAC			
	Control circuit Single-phase 100 VAC	— ¹⁾		
	Control circuit Three-phase 200 VAC	70 A ¹⁾		
	Control circuit Single-phase 200 VAC			
General specifications	Type		For 200 V	
	Capacity		200W	
	Input power supply	Voltage/frequency	Main circuit	3-phase (or single-phase) 200 to 230 VAC, 50/60 Hz, 270 to 320 VDC
			Control circuit	Single-phase 200 to 230 VAC, 50/60 Hz
	Main circuit/control circuit	Allowable voltage fluctuation	170 to 253 VAC	
			Allowable frequency fluctuation	±5% or less
	Allowable instantaneous outage time	Main circuit	Full-stop (100% down): 0.5 cycles, half-stop (50% down): 1 cycle	
		Control circuit	Approx 100ms	
	Overvoltage category		III	
	Control method		3-phase full-wave rectification, IGBT, PWM control, sine wave current drive method	
	Feedback		20-bit serial encoder (incremental, absolute) communication	
	Operating environment	Operating ambient temperature		0 to +55°C (no freezing)
		Ambient storage temperature		-20 to +70°C (no freezing)
		Ambient operating/storage humidity		90%RH or less (no condensation)
		Vibration resistance		4.9 m/s ² (conforms to JIS C 60068-2-6)
		Shock resistance		19.6 m/s ² (conforms to JIS C 60068-2-27)
		Operating atmosphere (enclosure rating/pollution degree)		Pollution degree: 2 (within a control panel that has a rating of IP54 or higher), however, · No corrosive or flammable gas present · A location that is not subject to water, oil, or drugs · No dust present
Altitude		1,000 m or less above sea level		
Approved standards		UL/CSA standards		
CE marking	Low-voltage directive		EN50178	
	EMI		EN55011 Class A, EN61800-3	
	EMS		EN61800-3, EN61000-6-2	

		North American EMI standards	FCC Part 15 B, ICES-003, Class A		
	Structure	Type	Base mounting attachment		
		Protection	Open, forced		
	Lowest insulation resistance value		1 MΩ or more, tested with a 500 VDC megger		
	Insulation withstand voltage		1,500 VAC or more (between the primary side and the earth terminal), 1,800 VAC or more (between the primary side and the secondary side)		
	Weight		Approx 0.9kg		
Performance specifications	Performance	Speed control range		1 to 5,000 (under the condition that the load torque is less than or equal to the rated torque)	
		Speed fluctuation rate	During load fluctuation	±0.01% or less with a load fluctuation between 0 and 100% (at the rated rotation speed)	
			When the voltage of the main circuit fluctuates	0% at the rated voltage ±10% (at the rated rotation speed)	
			When the ambient temperature fluctuates	±0.1% or less when the ambient temperature is between 0 and +50°C (at the rated rotation speed)	
		Torque control accuracy (reproducibility)		±1%	
	Speed frequency response		1.6 kHz (when JL = JM) * JL: load moment of inertia (motor axis conversion), JM: motor moment of inertia		
	Dynamic brake		Built-in		
	Analogue monitor output for observation		Monitor output such as motor rotation speed and torque instruction for observations, number of built-in channels: 2		
	Regenerative resistor	Built-in regenerative resistor		None	
		External regenerative resistor		OP-84399 (220 W ²)	
	Display function	Access window		Status monitor, parameter settings, calibration, etc.	
		CHARGE display LED		CHARGE LED (orange) for checking the main circuit power supply input	
		Status		Servo on, instruction input in progress, warning	
	Communication function	USB communication	Function	Status display, parameter settings, calibration, etc.	
Connection device			PC		
Protection function		Overcurrent, overvoltage, insufficient voltage, overload, regeneration error, etc.			
Other functions		Auto calibration, absolute position system, etc.			
I/O specifications	Pulse/Analogue input type	Control I/O	Input signal: Number of channels	13ch	
			Output signal: Number of channels	5ch	
			Output signal: Function	Alarm (ALARM), operation preparation complete (RDY), in position (INPOS), speed matching (VCMP), electromagnetic brake timing (BRAKE), torque control in progress (TLM), speed control in progress (VLM), warning (WARN), zero-speed detection (ZSP), near position	
	Encoder division pulse output		A-phase (A+, A-), B-phase (B+, B-), Z-phase (Z+, Z-): line-driver output; ³ Z-phase (ZOC): open-collector output; number of division pulses: 1.6 Mpps maximum (6.4 MHz when 2-phase 4× selected) ⁴		
	Position control	Pulse string input: Command pulse format	Sign + pulse wave, 2-pulse, A-phase + B-phase * Positive and negative logic can be selected for each shape.		
		Pulse string input: Input format	Line driver, ³ open collector		
		Pulse string input: Input frequency	Line driver single-phase: 4 MHz, phase difference: 4 MHz, open collector: 200 kHz		
	Speed control	Analogue input: Command voltage	Maximum input voltage: ±12 V		
		Analogue input: Input impedance	Approx 14 kΩ or more		
		Analogue input: Circuit time constant	30 μs		
		Speed selection	The SPD1, SPD2, and SPD3 signals can be used to select the 1st to 7th setting instruction speeds.		
	Torque control	Analogue input: Command voltage	Maximum input voltage: ±12 V		
		Analogue input: Input impedance	Approx 14 kΩ or more		
		Analogue input: Circuit time constant	16 μs		
	I/O terminal specifications and wiring	General-purpose input (DI-1)	Maximum input voltage	26.4 VDC	
			Input rated voltage	24 VDC (5mA)	
			Minimum ON voltage	19 VDC	
Maximum OFF current			0.1mA		
Common ground			Common (MECHATROLINK-II type servo amplifiers only have positive commons.)		
General-purpose output (DO-1)		Output	Open-collector output		
		Rated load	30 VDC (30mA)		
		Leakage current (at OFF)	0.1mA		
		Residual voltage (at ON)	1.6 VDC or less		
		Common ground	Common		
2-wire method compatible input (DI-2)		Maximum input voltage	26.4 VDC		
		Input rated voltage	24 VDC (9mA)		
		Minimum ON voltage	19 VDC		
		Maximum OFF current	1.5mA		
		Common ground	Common (MECHATROLINK-II type servo amplifiers only have positive commons.)		
2-wire method compatible high-speed input (DI-3)		Maximum input voltage	—		
		Input rated voltage	—		
	Minimum ON voltage	—			
	Maximum OFF current	—			
Z phase open-collector	Output	Non-isolated open-collector output			

	r output (DO-2)	Rated load	30 VDC (30mA)	
		Leakage current (at OFF)	0.1mA	
		Residual voltage (at ON)	1.2 VDC or less	
		Common ground	Non-isolated	
		Output frequency	50kHz	
	Analogue input (AI)	Input level	±12 VDC	
		Accuracy	±0.02% (V-REF), ±1% (T-REF)	
		Circuit input filter	30 μs (V-REF), 16 μs (T-REF)	
	Pulse input (DI-P)	Maximum input voltage	Differential line-driver	Corresponds to AM26C31
			Open-collector (R1 resistance value): 2.2 kΩ	30 VDC ⁵
			Open-collector (R1 resistance value): 1 kΩ	15 VDC ⁶
		Input rated voltage	Open-collector (R1 resistance value): 180 kΩ	6.25 VDC ⁷
			Differential line-driver	Corresponds to AM26C31
			Open-collector (R1 resistance value): 2.2 kΩ	24 VDC ⁸
			Open-collector (R1 resistance value): 1 kΩ	12 VDC ⁶
		Minimum ON voltage	Open-collector (R1 resistance value): 180 kΩ	5 VDC ⁷
			Differential line-driver	Corresponds to AM26C31
			Open-collector (R1 resistance value): 2.2 kΩ	18.3V ⁶
		Maximum OFF current	Open-collector (R1 resistance value): 1 kΩ	9.9V ⁶
			Open-collector (R1 resistance value): 180 kΩ	4.2V ⁶
Differential line-driver			Corresponds to AM26C31	
Common ground		Open-collector (R1 resistance value) recommended input current	0.1 mA ⁶	
		Differential line-driver	Independent (non-isolated)	
Response frequency		Open-collector (R1 resistance value) recommended input current	Common ⁹	
	Differential line-driver	Single-phase: 4 MHz, phase difference: 4 MHz		
Encoder output (DO-E)	Open-collector (R1 resistance value) recommended input current	200kHz ⁵		
	Output	Differential line-driver output		
	Output voltage	Corresponds to AM26C31		
	Common ground	Independent (non-isolated)		
	Output frequency	Phase difference: 1.6 Mpps (after 4x: 6.4 MHz)		

¹ When used with the amount of current listed above, the duration of the rush current is 20 ms or lower.

² The rated capacity is the value with an ambient temperature of 70°C. However, when natural air cooling is being used, use this product with a capacity that is 20% or less of the value written above.

³ Corresponds to AM26C31

⁴ The parameters can be us

⁵ recommended input current: 7 to 30 mA

⁶ recommended input current: 7 to 15 mA

⁷ recommended input current: 7 to 5 mA

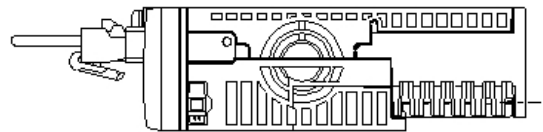
⁸ recommended input current: 7 to 24 mA

⁹ 7 to 15 mA

Dimensions

* Download CAD file or product manual for larger image/text and more detail.

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Mounting holes

